Smart Support for the Smart Grid

Now that the dog caught the bus, what should we do?

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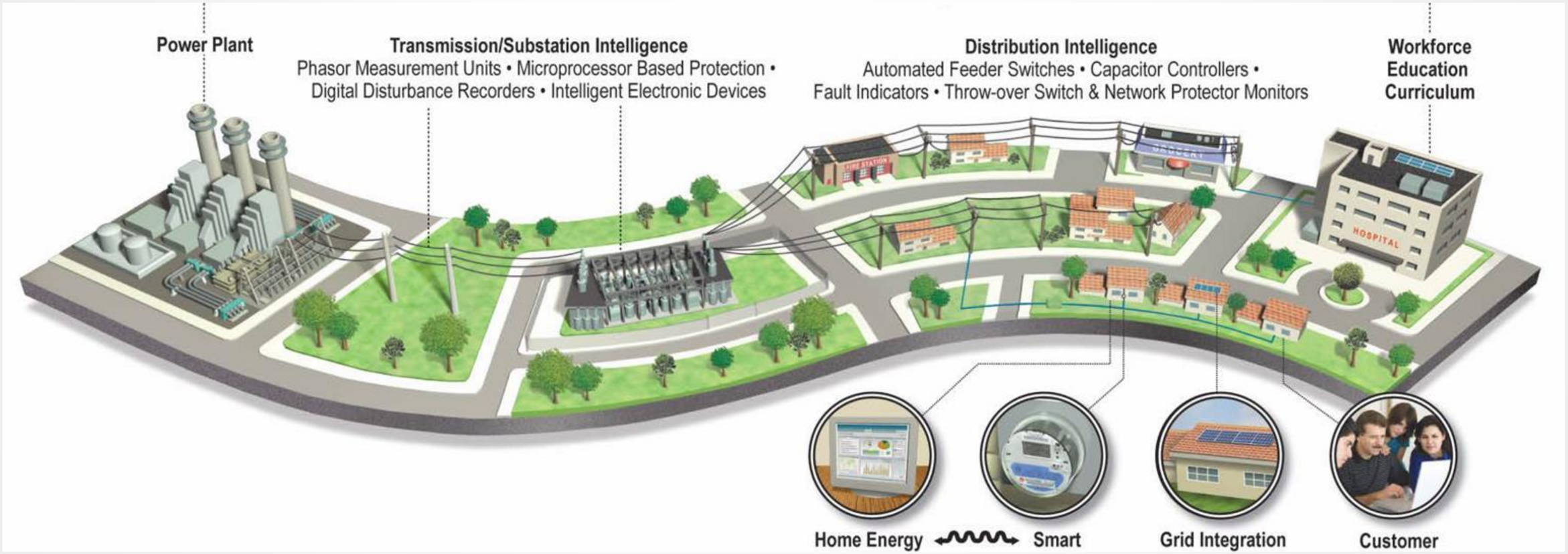
Smart Grid Investment has Changed the Game

$18 billion

Spent for smart grid technology deployed in the United States during the 4-year period of 2010 through 2013 (BNEF 2014)



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Focused on Benefits, what have we overlooked?

- More critical assets in the field
- Less eyes in the field
- New technologies to maintain
- More assets to recover in an emergency event

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What do we need to address?

- Maintenance
  - People, Process, Technology
    - 100+ year history meets quick change
  - Increased use of contractors
  - Volume
- Emergency Events
  - A different experience

While we spent our $18B, what happened in the rest of the world?

- Everyone has a powerful computer handy
- Communications are much more dependable (you are rarely out of touch for too long)
- Cloud (technology + processes) capabilities have exploded
- Increasing use of contractors
- Crowdsourcing of information

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Options for Smart Support of the Smart Grid

- Who inspects, assesses and maintains the growing number of assets?
  - Internal (which department, and how well trained?)
  - Contractors
- What systems?
  - Expand current systems
  - Implement new (to the utility) work management systems
  - Utilize mobile, cloud based systems

The Options

Criteria	Expand Current	Implement New	Cloud Based
Project implementation time	2	3	1
Complexity	2	3	1
Initial cost	2	3	1
Applicable to contractors	2	2	1
Tie to other utility systems	1	1	3
Keep upgraded	3	2	1
Support effort	3	1	1
Disaster operations	3	3	1
Total	**18**	**18**	**10**

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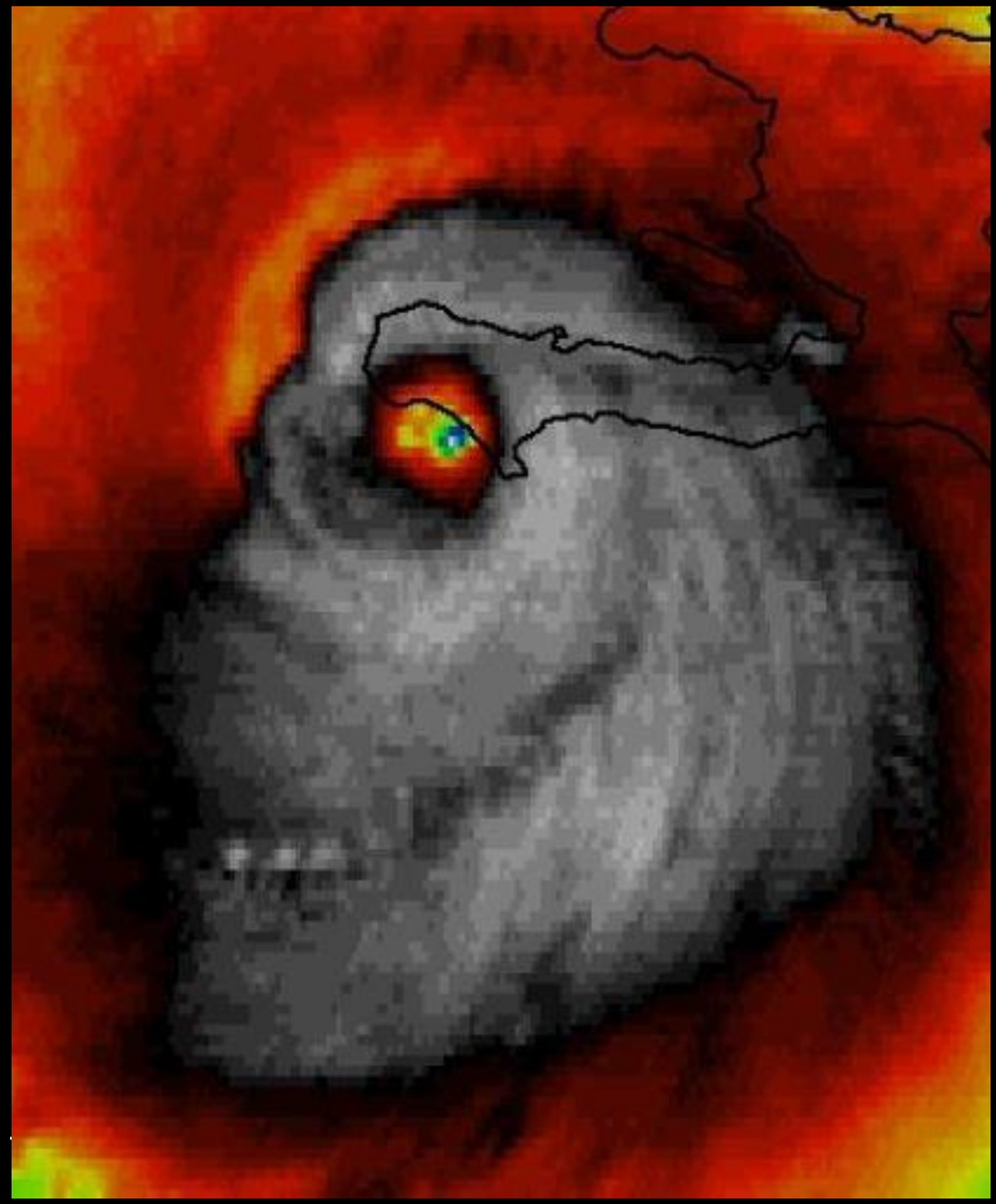
What happens when EVIL strikes?

Meet Matthew



Hurricane Matthew making landfall at Haiti

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Emergency Events

What should we expect now?

- Call out the troops!
  - Mutual Assistance
  - Contractors
  - Appraisals
  - Everybody is on – they download specific apps right on the field
- Instant damage assessment – with photographs and geo-tags
- Manage the workflow – including emergency requests – schedule, dispatch from the field
- Safety first
  - Geo-fencing can track the location of the user and allows you to warn them
    - Policies procedure
    - Communication
- Communication and control
  - Status
  - Progress
- The technology managing event response must be rock solid

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So, what should we expect in an ideal system?

TWO ELEMENTS:

- **MOBILE DRIVEN**
- **CLOUD-BASED**

Key Factors

Intuitive & Instant
- And Controlled

Smart - use the power of the computer in the pocket

Appropriate ties to base systems
- Integrating too much can cause confusion and delayed implementation
- Online & offline
- Simplicity rules

In other words: Faster, Simpler, Smarter

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Summary

The massive addition of Smart Grid technologies demand that we improve maintenance.

The world has changed.

- Change from back end focus to mobile focus
- Cloud capabilities are mature
- Contracting and outsourcing is expected
- Quick improvements are more important than delays in building ‘perfect’ systems

Utilities need to strategically change from 100 year traditions and utilize modern technologies and concepts.

Q&A

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